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TRANSMITTAL FORM

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Total Number of Pages in This Submission	41

Application Number	10/752,953
Filing Date	January 7, 2004
First Named Inventor	Timothy J. Crist
Art Unit	3643
Examiner Name	Son T. Nguyen
Attorney Docket Number	2973-A-36

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [x] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
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- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
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  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
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- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Cahill, von Hellens & Glazer P.L.C.		
Signature			
Printed name	William C. Cahill		
Date	July 21, 2006	Reg. No.	19,742

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Typed or printed name	William C. Cahill	Date	July 21, 2006

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FEE TRANSMITTAL
For FY 2006

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 250.00

Complete if Known	
Application Number	10/752,953
Filing Date	January 7, 2004
First Named Inventor	Timothy J. Crist
Examiner Name	Son T. Nguyen
Art Unit	3643
Attorney Docket No.	2973-A-36

METHOD OF PAYMENT (check all that apply)

☑ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 03-0088 Deposit Account Name: Cahill, von Hellens &....

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1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	0
Design	200	100	100	50	130	65	0
Plant	200	100	300	150	160	80	0
Reissue	300	150	500	250	600	300	0
Provisional	200	100	0	0	0	0	0

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____ x	_____ =	0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____ x	_____ =	0

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	0

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round up to a whole number) x	_____ =	0

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	0
Other (e.g., late filing surcharge): Appeal Brief	250.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 19,742	Telephone 602-956-7000
Name (Print/Type)	William C. Cahill		Date July 21, 2006

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/752,953	Confirmation No.4414
Applicant	:	Timothy J. Crist et al.	
Filed	:	January 7, 2004	
Title	:	FREQUENCY SPECTRUM CAPTURE AND COMPARE TECHNIQUE FOR VALID BARK DETECTION	
TC/A.U.	:	3643	
Examiner	:	Son T. Nguyen	
Docket No.	:	2973-A-36	

I hereby certify that on July 21, 2006 this paper or fee is being facsimile transmitted to the USPTO at 571/273-8300 or deposited with sufficient postage with the United States Postal service as first class mail in an envelope addressed to:

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William C. Cahill, Attorney for Applicant

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant submits herewith its Appeal Brief in accordance with 37 CFR §41.37 in the above identified application. This Brief is accompanied by the required fee.

07/25/2006 MWOLDGE1 00000033 10752953
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Table of Contents

Real Party in Interest

The real party in interest is Tri-Tronics, Inc., the Assignee of record.

Related Appeals and Interferences

None

Status of Claims

Claims 1-12 originally filed

First Office Action dated 5/5/2005

Claims 1-2, 7, 12 rejected under 35 U.S.C. 102(b)

Claims 3-6, 8-11 are rejected under 35 U.S.C. (103(a)

Response to First Office Action

Second and Final Office Action dated 11/23/2005

Claims 1-2, 7, 12 rejected under 35 U.S.C. 102(b)

Claims 3-6, 8-11 rejected under 35 U.S.C. 103(a)

No response filed to Second and Final Office Action

Claims 1-12 are the subject of this Appeal.

Status of Amendments

No amendment filed subsequent to the final rejection.

Summary of Claimed Subject Matter

A summary of the independent appealed claims and reference to corresponding specification pages and drawings are as follows:

Claim 1. A method of operating an electronic apparatus (reference numeral 1, Figs. 1, 2, 3A and 3B)

i. a housing (reference numeral 2 in Figs. 1, 2, 3 and 3B)

ii. first and second stimulus electrodes (reference numeral 5 in Figs. 1 and 2) connected to a surface (reference numeral 9, Figs. 1 and 2)

iii. a sensor (reference numeral 6, Figs. 3A and 3B)

iv. control circuitry, including a controller (reference numeral 33 in Figs. 4-1 and 4-2), in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals (reference numerals 5C and 5B in Fig. 4-2) coupled to produce

aversive stimulus signals between the first and second stimulus electrodes (reference numeral 5 in Figs. 1 and 2)

the method comprising:

(a) electronically converting vocalizing sounds from the dog into a sequence of corresponding signals representing the frequencies of the vocalizing sounds, and providing the sequence of signals as an input to the controller; (page 12, line 18 through page 13, line 2)

(b) operating the controller to determine the frequencies of the sequence of signals during a predetermined interval of time, (page 12, line 18 through page 13, line 2)

(c) operating the controller to determine if each measured frequency lies within any of a plurality of predetermined frequency sub-ranges and if so, then incrementing cumulative totals of the frequencies which lie in the sub-ranges, respectively, to provide a plurality of cumulative totals that represent a frequency spectrum of the vocalizing sounds; (page 13, lines 2 through 10)

(d) determining whether the barking sounds constitute a valid bark by operating the controller to compare the frequency spectrum to a predetermined valid bark frequency spectrum; and (page 13, lines 9, 10)

(e) operating the microcontroller to cause the control circuitry to cause appropriate aversive stimulus signals to be produced between the first and second stimulus electrodes if the determination of step (d) determines that the vocalizing sounds constitute a valid bark. (page 13, lines 15-20)

(A discussion and description of the steps (a) through (e) may also be found in Figs. 5A and 5B together with an abbreviated description of Fig. 5A on page 13, lines 11-20 and a detailed description that follows on page 14, line 1 through page 16, line 7.)

Claim 2. A method of operating a collar-mounted electronic apparatus (reference numeral 1, Figs. 1, 2, 3A and 3B).

i. a housing (reference numeral 2 in Figs. 1, 2, 3 and 3B)

ii. first and second stimulus electrodes (reference numeral 5 in Figs. 1 and 2) connected to a surface (reference numeral 9, Figs. 1 and 2)

iii. a sensor (reference numeral 6, Figs. 3A and 3B)

iv. control circuitry, including a controller (reference numeral 33 in Figs. 4-1 and 4-2), in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals (reference numerals 5C and 5B in Fig. 4-2) coupled to produce aversive stimulus signals between the first and second stimulus electrodes (reference numeral 5 in Figs. 1 and 2)

the method comprising:

(a) providing a range of frequencies within which valid barking sounds fall and a plurality of sub-ranges within the range; (page 13, lines 1-2)

(b) electronically converting barking sounds from the dog into a sequence of corresponding signals representing the frequencies of the barking sounds, and providing the

sequence of signals as an input to the microcontroller; (page 12, line 18 through page 13, line 2)

(c) operating the microcontroller to determine the frequencies of the sequence of signals during a predetermined interval of time; (page 12, line 18 through page 13, line 2)

(d) operating the microcontroller to determine if each measured frequency lies within any of the sub-ranges and if so, then incrementing a cumulative total of the frequencies which lie in that sub-range to provide a plurality of cumulative totals that represent a frequency spectrum of the barking sounds; (page 13, lines 2 through 10)

(e) determining whether the vocalizing sounds constitute a valid bark by operating the microcontroller to compare the frequency spectrum to a predetermined valid bark frequency spectrum; and (page 13, lines 9, 10)

(f) operating the microcontroller to cause the control circuitry to cause appropriate aversive stimulus signals to be produced between the first and second stimulus electrodes if the determination of step (e) determines that the barking sounds constitute a valid bark. (page 13, lines 15-20)

(A discussion and description of the steps (a) through (f) may also be found in Figs. 5A and 5B together with an abbreviated description of Fig. 5A on page 13, lines 11-20 and a detailed description that follows on page 14, line 1 through page 16, line 7.)

Claim 7. An electronic apparatus (reference numeral 1, Figs. 1, 2, 3A and 3B) for controlling vocalizing by a dog, the electronic apparatus including:

(a) a housing supported against the animal's skin; (reference numeral 2 in Figs. 1, 2, 3 and 3B)

(b) first and second stimulus electrodes connected to a surface of the housing; (reference numeral 5 in Figs. 1 and 2; reference numeral 9 in Figs. 1 and 2)

(c) a sensor supported by the housing for producing signals in response to vocalizing by the dog; (reference numeral 6, Figs. 3A and 3B)

(d) control circuitry, including a controller, in the housing having an input

coupled to an output of the sensor, the control circuitry including output terminals coupled to produce aversive stimulus signals between the first and second stimulus electrodes in response to vocalizing by the dog; (reference numeral 33 in Figs. 4-1 and 4-2; reference numerals 5C and 5B in Fig. 4-2)

(e) the control circuitry electronically converting vocalizing sounds from the dog into a sequence of corresponding signals representing the frequencies of the vocalizing sounds, and providing the sequence of signals as an input to the controller; (page 12, line 18 through page 13, line 2)

(f) the controller executing a stored program to determine the frequencies of the sequence of signals during a predetermined interval of time; (page 12, line 18 through page 13, line 2)

(g) the controller executing the stored program to determine if each measured frequency lies within any of a plurality of predetermined frequency sub-ranges and if so, then incrementing cumulative totals of the frequencies which lie in the sub-ranges, respectively, to provide a plurality of cumulative totals that represent a frequency spectrum of the vocalizing

sounds; (page 13, lines 2 through 10)

(d) [It is noted that this subparagraph should be designated by the letter "h" - an amendment will be submitted if the claim is ultimately allowed] the controller executing the stored program to determine whether the barking sounds constitute a valid bark by operating the controller to compare the frequency spectrum to a predetermined valid bark frequency spectrum; and (page 13, lines 9-10)

(e) [It is noted that this subparagraph should be designated by the letter "i" - an amendment will be submitted if the claim is ultimately allowed] the controller executing the stored program to cause the control circuitry to produce appropriate aversive stimulus signals between the first and second stimulus electrodes if the vocalizing sounds constitute a valid bark. (page 13, lines 15-20)

(A discussion and description of the steps (a) through (i) may also be found in Figs. 5A and 5B together with an abbreviated description of Fig. 5A on page 13, lines 11-20 and a detailed description that follows on page 14, line 1 through page 16, line 7.)

Claim 12. An electronic apparatus for controlling vocalizing by a dog: (reference numeral 1, Figs. 1, 2, 3 and 3B)

(a) a housing supported against the animal's skin by a strap; (reference numeral 2 in Figs. 1, 2, 3 and 3B)

(b) first and second stimulus electrodes connected to a surface of the housing; (reference numeral 5 in Figs. 1 and 2; reference numeral 9 in Figs. 1 and 2)

(c) a sensor supported by the housing for producing signals in response to vocalizing by the dog; (reference numeral 6, Figs. 3A and 3B)

(d) control circuitry, including a controller, in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals coupled to produce aversive stimulus signals between the first and second stimulus electrodes in response to vocalizing by the dog; (reference numeral 33 in Figs. 4-1 and 4-2; reference numerals 5C and 5B in Figs. 4-2)

(e) means for electronically converting vocalizing sounds from the dog into a sequence of corresponding signals representing the frequencies of the vocalizing sounds and providing the sequence of signals as an input to the controller; (page 12, line 18 through page 13, line 2)

(f) means for operating the controller to determine the frequencies of the sequence of signals during a predetermined interval of time; (page 12, line 18 through page 13, line 2)

(g) means for operating the controller to determine if each measured frequency lies within any of a plurality of predetermined frequency sub-ranges and if so, then incrementing cumulative totals of the frequencies which lie in the sub-ranges, respectively, to provide a plurality of cumulative totals that represent a frequency spectrum of the vocalizing sounds; (page 13, lines 2 through 10)

(h) means for comparing the frequency spectrum to a predetermined valid bark frequency spectrum to determine whether the barking sounds constitute a valid bark by operating the controller to; and (page 13, lines 9-10)

(i) means for operating the microcontroller to cause the control circuitry to cause appropriate aversive stimulus signals to be produced between the first and second stimulus electrodes if the determination of step (d) determines that the vocalizing sounds constitute a valid bark. (page 13, lines 15-20)

(A discussion and description of the steps (a) through (i) may also be found in Figs. 5A and 5B together with an abbreviated description of Fig. 5A on page 13, lines 11-20 and a detailed description that follows on page 14, line 1 through page 16, line 7.)

Grounds of Rejection to be Reviewed on Appeal

Claims 1-12 are present in this application. Claims 1-2, 7 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent to Farkas 4,947,795. Claims 3-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the same reference as above – Farkas 4,947,795.

Argument

Since applicants believe the independent claims 1, 2 ,7 and 12 define a patentable invention, and since applicants do not believe that the added limitations of the dependent claims represent patentable advances over the independent claims, argument will be limited to the rejection of the independent claims. However, examiner's comments concerning the dependent claims are relevant to the proposition that the examiner has improperly based his opinion of obviousness on a misunderstanding and/or misreading of the cited prior art.

Applicant's invention relates to collar-mounted electronic "bark limiter" or dog bark training devices and incorporates a housing supported against the animal's skin to provide certain functional features that assist in the detection of a valid bark and the subsequent application of an averse stimulus to the dog to assist in training the dog. It is important to note that the invention is not the selection of any particular frequency or the detection of a frequency range of 150 hertz to 800 hertz. The latter frequency range may be the most useful since it represents the typical range are to be considered when evaluating a dog's bark. However, numerous sounds emanating from a myriad of sources may fall within this range. But applicants have discovered that when sounds in this range, impinging on a detector positioned on a dog

collar, are detected, it is possible to select a sampling time during which the sound is operated upon. This operation determines if any of the frequencies within the sound fall within predetermined sub-ranges and if so, then incrementing the total number of times each of the sub-ranges was detected during the sampling time. The result is the capture of a sound and the comparison of it's analysis to stored sub-range levels that define a valid bark.

The Farkas reference, assigned to the assignee of the present application, discloses a bark trainer having a housing containing electrical shock control circuitry. The electrical stimulus and control circuit contained in the housing of the bark trainer in Farkas

> "consists of a vibration sensor 23...that is more sensitive to large amplitude vibrations produced by a dog's barking than to extraneous airborne sounds such as another dog's barking. The electrical signal produced by microphone 23 in response to the barking by the dog is fed into the input of an ordinary audio amplifier circuit 24 that contains an output filter stage 24 which is designed to filter out or discriminate against undesired triggering of the bark trainer and by various extraneous non-barking noises and/or vibrations". (column 3, lines 53 through 65).

This description of the control functions of the control circuit of Farkas is radically different from that described and claimed in the present application. Farkas' filtering or discrimination are not functionally, or even theoretically, similar to detecting subranges of frequencies and comparing the captured sub-range levels with predetermined sub-range levels. The examiner has stated on page 3 of the final Office Action and on the identical page of the first Office Action, referring to Farkas,

> "...the control circuitry electronically converts sounds from the dog into a sequence of signals, the controller executing a stored program to determine frequencies, the controller executing the stored program to determine sub-ranges and incrementing totals of the frequencies, the controller executing the stored program to determine whether barking sounds is valid, and the controller executing the stored program to cause stimulus signals between the electrodes".

To support this statement, the examiner refers to the Farkas reference, column 3, lines 35-68, and all of columns 4, 5 and 6. In other words, the examiner is simply referring to essentially all of the Farkas reference but does not provide reference to his conclusion "that Farkas' controller executes a stored program to determine frequencies, and the controller executing the stored program to determine sub-ranges and incrementing the totals of the frequencies". In response to

the first Office Action incorporating the above language, applicant pointed out that Farkas did not deal with sub-ranges and certainly did not accumulate or increment the total number of times each sub-range was detected to provide a signature or analysis of the detected bark waveform for comparison to stored sub-range levels and thus determine whether or not the bark is a valid bark. In response to this argument, the examiner replied that "as for the argument regarding frequency ranges, Farkas teaches pulses, therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the range of frequencies is [sic] from 150 hertz to 800 hertz in the method of Farkas, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable value/range until the desired affect is achieved involves only routine skill in the art". Applicant's invention is not directed to the specific frequency range of 150 hertz to 800 hertz. That range is appropriate in most applications but the invention is not directed to the selection of any particular frequency or the detection of any particular frequency. The invention is directed to the detection of a plurality of sub-ranges and accumulating and incrementing the total number of times each sub-range is detected to thus present a picture or signature of the detected bark for comparison analysis to stored sub-ranges.

It is not seen how the implementation of applicant's method could possible have resulted

from "routine testing and general experimental conditions". The subject invention as claimed is not derivable by experimentation through simple selection of frequencies for detection; filtering to eliminate undesired triggering is radically different from and cannot provide experimental basis for deriving applicant's method.

Each of the claims of the present application, and on appeal here, incorporates specific limitations directed to the measure of frequencies within a plurality of predetermined frequency sub-ranges, and of such sub-range frequencies detected that incrementing accumulative totals of the frequencies lie in the sub-ranges to provide a plurality of cumulative totals that represents a frequency spectrum of vocalizing sounds. There is nothing in Farkas, or nothing of which applicant is aware, that utilizes this technique to provide a determination of a valid bark. The end result of this apparatus and method eliminates to improper or inadvertent application of averse electrical stimulus to the dog when the detected sound is not a valid bark. It is possible and even likely that prior art techniques would detect valid barks and operate to apply averse electrical stimulus to the dog; however, it is equally important to provide the feature and advantages of the present invention wherein detected sounds (even if they emanate from the dog) do not result in the application of averse stimulus unless those sounds meet the specifications required by a valid bark criteria. It is therefore respectfully submitted that the Farkas reference

fails to anticipate the claimed invention and does not show, suggest or teach the utilization of sound or bark detection incorporating the detection of frequencies within sub-ranges for storing, incrementing and ultimately comparing the signature of the bark to a predetermined valid bark characteristic.

Claims Appendix

1. A method of operating an electronic apparatus to control vocalizing by a dog, the electronic apparatus including

i. a housing supported against the animal's skin by a strap,

ii. first and second stimulus electrodes connected to a surface of the housing,

iii. a sensor supported by the housing for producing signals in response to vocalizing by the dog,

iv. control circuitry, including a controller, in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals coupled to produce aversive stimulus signals between the first and second stimulus electrodes in response to vocalizing by the dog;

the method comprising:

(a) electronically converting vocalizing sounds from the dog into a sequence of corresponding signals representing the frequencies of the vocalizing sounds, and providing the sequence of signals as an input to the controller;

(b) operating the controller to determine the frequencies of the sequence of signals during a predetermined interval of time;

(c) operating the controller to determine if each measured frequency lies within any of a plurality of predetermined frequency sub-ranges and if so, then incrementing cumulative totals of the frequencies which lie in the sub-ranges, respectively, to provide a plurality of cumulative totals that represent a frequency spectrum of the vocalizing sounds;

(d) determining whether the barking sounds constitute a valid bark by operating the controller to compare the frequency spectrum to a predetermined valid bark frequency spectrum; and

(e) operating the microcontroller to cause the control circuitry to cause appropriate aversive stimulus signals to be produced between the first and second stimulus

electrodes if the determination of step (d) determines that the vocalizing sounds constitute a valid bark.

2. A method of operating a collar-mounted electronic apparatus to control barking by a dog, the electronic apparatus including

i. a housing supported by a collar for attachment to the dog's neck,

ii. first and second stimulus electrodes connected to a surface of the housing,

iii. a sensor supported by the housing for detecting vibrations caused by vocalizing and/or barking by the dog,

iv. control circuitry, including a microcontroller, in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals coupled to produce aversive stimulus signals between the first and second stimulus electrodes in response

to barking by the dog;

the method comprising:

(a) providing a range of frequencies within which valid barking sounds fall and a plurality of sub-ranges within the range;

(b) electronically converting barking sounds from the dog into a sequence of corresponding signals representing the frequencies of the barking sounds, and providing the sequence of signals as an input to the microcontroller;

(c) operating the microcontroller to determine the frequencies of the sequence of signals during a predetermined interval of time;

(d) operating the microcontroller to determine if each measured frequency lies within any of the sub-ranges and if so, then incrementing a cumulative total of the frequencies which lie in that sub-range to provide a plurality of cumulative totals that represent a frequency spectrum of the barking sounds;

(e) determining whether the vocalizing sounds constitute a valid bark by operating the microcontroller to compare the frequency spectrum to a predetermined valid bark frequency spectrum; and

(f) operating the microcontroller to cause the control circuitry to cause appropriate aversive stimulus signals to be produced between the first and second stimulus electrodes if the determination of step (e) determines that the barking sounds constitute a valid bark.

3. The method of claim 2 wherein the range of frequencies is from 150 hertz to 800 Hz.

4. The method of claim 3 wherein the number of sub-ranges is 16.

5. The method of claim 2 wherein the sub-ranges are contiguous across the range.

6. The method of claim 2 wherein the predetermined interval of time is approximately 120 milliseconds.

7. An electronic apparatus for controlling vocalizing by a dog, the electronic apparatus including:

(a) a housing supported against the animal's skin;

(b) first and second stimulus electrodes connected to a surface of the housing;

(c) a sensor supported by the housing for producing signals in response to vocalizing by the dog;

(d) control circuitry, including a controller, in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals coupled to produce aversive stimulus signals between the first and second stimulus electrodes in response to vocalizing by the dog;

(e) the control circuitry electronically converting vocalizing sounds from the dog into a sequence of corresponding signals representing the frequencies of the vocalizing sounds, and providing the sequence of signals as an input to the controller;

(f) the controller executing a stored program to determine the frequencies of the sequence of signals during a predetermined interval of time;

(g) the controller executing the stored program to determine if each measured frequency lies within any of a plurality of predetermined frequency sub-ranges and if so, then incrementing cumulative totals of the frequencies which lie in the sub-ranges, respectively, to provide a plurality of cumulative totals that represent a frequency spectrum of the vocalizing sounds;

(d) the controller executing the stored program to determine whether the barking sounds constitute a valid bark by operating the controller to compare the frequency spectrum to a predetermined valid bark frequency spectrum; and

(e) the controller executing the stored program to cause the control circuitry to produce appropriate aversive stimulus signals between the first and second stimulus electrodes if the vocalizing sounds constitute a valid bark.

8. The electronic apparatus of claim 7 wherein the range of frequencies is from 150 hertz to 800 Hz.

9. The electronic apparatus of claim 7 wherein the number of sub-ranges is 16.

10. The electronic apparatus of claim 7 wherein the sub-ranges are contiguous across the range.

11. The electronic apparatus of claim 7 wherein the predetermined interval of time is approximately 120 milliseconds.

12. An electronic apparatus for controlling vocalizing by a dog:

(a) a housing supported against the animal's skin by a strap;

(b) first and second stimulus electrodes connected to a surface of the housing;

(c) a sensor supported by the housing for producing signals in response to vocalizing by the dog;

(d) control circuitry, including a controller, in the housing having an input coupled to an output of the sensor, the control circuitry including output terminals coupled to produce aversive stimulus signals between the first and second stimulus electrodes in response to vocalizing by the dog;

(e) means for electronically converting vocalizing sounds from the dog into a sequence of corresponding signals representing the frequencies of the vocalizing sounds and providing the sequence of signals as an input to the controller;

(f) means for operating the controller to determine the frequencies of the sequence of signals during a predetermined interval of time;

(g) means for operating the controller to determine if each measured frequency lies within any of a plurality of predetermined frequency sub-ranges and if so, then incrementing cumulative totals of the frequencies which lie in the sub-ranges, respectively, to provide a plurality of cumulative totals that represent a frequency spectrum of the vocalizing sounds;

(h) means for comparing the frequency spectrum to a predetermined valid bark

frequency spectrum to determine whether the barking sounds constitute a valid bark by operating the controller to; and

(i) means for operating the microcontroller to cause the control circuitry to cause appropriate aversive stimulus signals to be produced between the first and second stimulus electrodes if the determination of step (d) determines that the vocalizing sounds constitute a valid bark.

Evidence Appendix

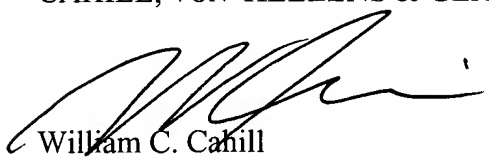
None

Related Proceedings Appendix

None

Respectfully submitted,

CAHILL, VON HELLENS & GLAZER P.L.C.



William C. Cahill
Registration No. 19,742

155 Park One
2141 E. Highland Avenue
Phoenix, Arizona 85016
602/956-7000
602/956-4298-Fax